

# King County Flood Control District Scope of Services 2012 Annual Report and 2013 First Quarter Performance Report

*April 2013*



**KING COUNTY**  
**FLOOD CONTROL**  
DISTRICT



**King County**

Department of Natural Resources and Parks  
Water and Land Resources Division

**River and Floodplain Management Section**

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*April 2013*



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*Cover photo: Record Office Revetment repair  
on the Snoqualmie River*

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# Table of Contents

|  |    |
|--|----|
| I. Introduction and Highlights .....   | 5  |
| II. Capital Improvement Program.....   | 9  |
| III. Operational and Programmatic Activities .....   | 11 |
| A. Flood Preparedness, Regional Flood Warning Center,<br>and Post Flood Recovery Program ..... | 11 |
| B. Flood Hazard Studies, Mapping and Technical Services Program .....                          | 12 |
| C. Public Outreach, Flood Hazard Planning and Grants, and<br>Repetitive Loss Mitigation .....  | 13 |
| – Flood Preparedness and Public Outreach   |    |
| – Leveraging External Resources through Grants and Partnerships                                |    |
| – King County Flood Hazard Management Plan Update  |    |
| – Levee Vegetation and U.S. Army Corps of Engineers PL 84-99 Eligibility                       |    |
| – National Flood Insurance Program Biological Opinion  |    |
| – Community Rating System Outreach Strategy  |    |
| D. King County Flood Control District Implementation .....                                     | 16 |
| E. Resource Management, Annual Maintenance and Facility<br>Assessment Program .....            | 17 |
| F. Program Management and Supervision; Finance,<br>Budget and General Administration .....     | 18 |

## List of Attachments

|                                     |    |
|-------------------------------------|----|
| Appendix A: 2012 Final Budget ..... | 19 |
| Appendix B: 2012 Expenditures ..... | 23 |
| Appendix C: 2013 Budget.....        | 27 |



# I. Introduction and Highlights

The Water and Land Resources Division of the King County Department of Natural Resources and Parks implements the King County Flood Control District (District) work program and provides this annual and first quarter report. The District's work program is comprised of two major components:

1. A capital improvement program to rehabilitate flood protection facilities and other projects to protect structures at high risk of flooding.
2. Operational and programmatic activities, such as identifying and communicating flood and channel migration risk to the public; preparing for and responding to flood events; maintaining more than 500 facilities in King County's flood protection system; and coordinating the District Advisory Committee and Basin Technical Committees (BTCs).



*A livestock barn is raised above flood level in the Snoqualmie Basin.*

## District work program highlights:

- **Flood damage repairs** – Flood damage repairs were completed at the Record Office Revetment (Upper Snoqualmie River), the Si View and Reif Road levees (South Fork Snoqualmie River), and the Dykstra Levee (Green River). Temporary repairs on the Belmondo Revetment (Cedar River) were initiated as an emergency action during the January 2009 flood, with permanent repair segments completed in 2010 and 2012. The final phase of permanent repairs is scheduled for completion in 2013.
- **Major levee rehabilitation engineering design** – Engineering design work supporting feasibility and key design milestones was completed for Reddington and 180th-200th (Green River), Middle Fork Snoqualmie and South Fork Levee System Improvements, Rainbow Bend (Cedar River), and the Countyline to A Street and Pacific Right Bank levee setback projects in the Pacific reach of the White River. Temporary flood barriers along the White River in Pacific were refurbished to provide temporary protection until the Pacific Right Bank project is implemented. Preliminary project planning was also initiated on the Winkelman Revetment along the Lower Snoqualmie.



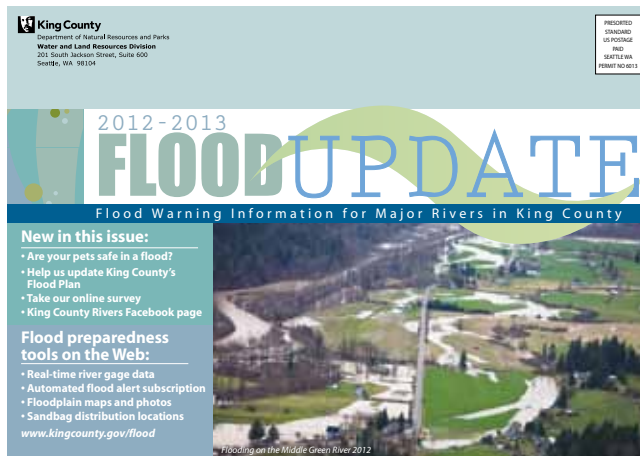
- **Acquisition and elevation of at-risk structures** – Nine acquisitions and three elevations of at-risk residential structures were completed along the Tolt, Raging, Upper Snoqualmie and Lower Snoqualmie Rivers.

- **Agricultural flood mitigation** – Three homes were elevated, including one farm house in the Lower Snoqualmie Agriculture Production District (APD). A 4,000 square foot livestock barn was elevated and a 1,250 square foot elevated platform was constructed under the Barn Elevation Pilot project. Acquisition offers for five properties in the Upper Snoqualmie have closed and negotiations for two more at-risk properties are underway. One farmhouse elevation project is underway in the lower valley and funding has been dedicated for three additional elevations which homeowners have not yet initiated.



*Under a pilot program, this farm platform was constructed in the Snoqualmie Basin for storage of livestock, machinery and supplies.*

- **Acquisitions for levee or revetment projects** – Acquired property (including one easement parcel) at a cost of nearly \$10.5 million to support the following levee setback projects: River Mile 1.1 on the Tolt River; Elliott Bridge, Rhode, and Jan Road-Rutledge Johnson on the Cedar River; Reddington on the Green River; and Countyline to A Street and the Pacific Right Bank on the White River. Some acquisitions combined funding from other sources such as the Conservation Futures Tax and Salmon Recovery Funding Board.
- **Flood insurance savings** – The Federal Emergency Management Agency verified King County's Class 2 rating for its flood risk reduction program resulting in flood insurance discounts under the National Flood Insurance Program.
- **Flood hazard management planning** – Prepared flood risk reduction action plans for each basin, organized and facilitated six citizen committee meetings and three public meetings to discuss issue papers and proposed basin action plans.
- **Flood buyout, relocations, deconstructions and demolitions** – Removed 34 homes from flood-prone locations and future levee setback sites. Seven were sold for relocation, four were deconstructed to salvage materials using crews from the Department of Adult and Juvenile Detention, (providing skills training for at-risk youth) and 23 were demolished.
- **Awards** – The Puget Sound Partnership recognized King County and the City of Seattle for the Lower Tolt River Floodplain Reconnection Project with its "Puget Sound Champions Award." This is the second regional award for this project. The **2012-2013 Flood Update: Flood Warning Information for Major Rivers in King County** brochure was recognized with a "Blue Pencil" award by the National Association for Government Communicators.



*King County's award-winning annual flood preparedness brochure in English and Spanish.*

### 2008-2012 Capital Improvement Projects and Mitigation Accomplishments by Basin

| RIVER BASIN                 | <ul style="list-style-type: none"> <li>• Acquisitions</li> <li>• Acres</li> <li>• Expenditure</li> </ul>       | Homes elevated | Agricultural structures elevated | Farm pads built | Structures demolished or removed | Construction projects completed |
|-----------------------------|--|----------------|----------------------------------|-----------------|----------------------------------|---------------------------------|
| <b>Snoqualmie-Skykomish</b> | <ul style="list-style-type: none"> <li>• 46 properties</li> <li>• 160 acres</li> <li>• \$15,833,635</li> </ul> | 50             | 2                                | 26              | 50                               | 33                              |
| <b>Cedar-Sammamish</b>      | <ul style="list-style-type: none"> <li>• 18 properties</li> <li>• 15 acres</li> <li>• \$5,452,500</li> </ul>   | 0              | 0                                | 0               | 76                               | 22                              |
| <b>Green-Duwamish</b>       | <ul style="list-style-type: none"> <li>• 6 properties</li> <li>• 42.6 acres</li> <li>• \$8,940,065</li> </ul>  | 0              | 0                                | 0               |                                  | 12                              |
| <b>White</b>                | <ul style="list-style-type: none"> <li>• 18 properties</li> <li>• 17.4 acres</li> <li>• \$4,319,799</li> </ul> | 0              | 0                                | 0               | 11 demolished<br>6 relocated     | 1                               |
| <b>TOTAL</b>                | <ul style="list-style-type: none"> <li>• 88 properties</li> <li>• 235 acres</li> <li>• \$34,545,999</li> </ul> | 50             | 2                                | 26              | 137 demolished<br>6 relocated    | 68                              |





## II. Capital Improvement Program

The District's 2012 revised capital program included 68 capital projects. More than 86 percent of the District's 2012 budget of \$99 million is allocated to the capital component of the work plan, backed by state and federal revenue of \$11 million to implement flood damage repairs and acquire or elevate at-risk residential structures.<sup>1</sup>

The District's capital projects meet one or more of the following flood hazard management objectives:

- Repair, rehabilitate, and improve flood facility protection throughout major commercial, industrial and residential areas;
- Reduce hazards by removing flood, erosion, and landslide prone residential structures;
- Improve flood water conveyance and capacity; and
- Provide safe access to homes and businesses by protecting key transportation routes.



*Cedar Rapids right bank levee setback during (top) and after construction (bottom).*

### Program highlights include:

- **Cedar Rapids Repair** – Construction was completed to set back a short section of levee and provide long term stabilization for the right bank of the site. This replaces the temporary repair of the right bank levee that resulted from flood damage in January 2011 and ties it into the downstream revetment.
- **Green River sandbag removal** – Following direction by the King County Flood Control District Board of Supervisors (Board) in May 2012, the capital program included \$5.8 million to cost-share removal of temporary flood-protection sandbags on the Green River. City crews and contractors for Auburn, Kent and Tukwila completed most of the removal late

<sup>1</sup> Based on the 2012 Reallocation Resolution that adopts the carryover budget; projects include all master projects with non-zero budget in 2012.

in 2012. The cities funded 25 percent and the District funded 75 percent of the cost, made possible by deferring capital construction projects in the Green River basin.

- **Lower White River** – Acquired two more residential properties in the City of Pacific on the right bank of the White River for construction of the Pacific Right Bank Levee Setback Project to replace more than a half mile of existing degraded revetment. One of these residential structures was relocated out of harm's way and sold for surplus and the other was removed in March 2013. Meanwhile, permit applications and 60 percent of the design plans for the Countyline Levee Setback Project are expected to be complete in early 2013.
- **Sub-Regional Opportunity Fund** – The Opportunity Fund is comprised of 10 percent of the District's tax revenues collected each year, which are allocated to jurisdictions based on prorated assessed value for approved projects. The revised adopted budget for 2012 is just over \$11 million, including \$7.5 million in carry forward from 2011. In 2012, reimbursements totaling \$3 million were paid to multiple jurisdictions to support stormwater and flood-related projects. For example, in December 2012 the City of Seattle completed a \$34 million project to reduce the risk of sewer back-up in Madison Valley by constructing holding facilities with the capacity of a 100-year flood event. The District's Opportunity Fund share of \$1,260,187 covered design, permitting, bidding, and public outreach, and project management, as well as the first phases of construction. The City of Kirkland removed sediment and non-native vegetation that was trapping sediment to prevent flooding, for which the city was reimbursed \$167,000 of a \$272,912 project. The Opportunity Fund for 2013 is \$3.719
- **WRIA collaborative watershed management grants** – In 2012, the District added \$3.15 million to the budget to fund Watershed Resource Inventory Area (WRIA) collaborative watershed management grants for the Snoqualmie portion of WRIA 7, WRIAs 8 and 9, and the King County portion of WRIA 10. The 2013 budget adopted by the Board includes \$3.15 million to continue this program.
- **Naturally-occurring large wood procedure update** – Updated the policies and procedures for how King County responds to trees that fall in rivers to improve public safety and provide clarity on how King County manages wood in rivers.
- **Project management standardization** – Implemented a new Project Management Manual to ensure standardized management of all capital projects, including public outreach.

## **Coordination with the City of Kent**

The City of Kent is seeking accreditation for levees and floodwalls from the Federal Emergency Management Agency (FEMA) so that when new FEMA floodplain maps take effect the land behind these levees will not be subject to FEMA's floodplain development or insurance requirements. The District's goal is to complete efficient levee projects in a way that can meet certification requirements while also providing a higher level of protection. In accordance with a specific Agreement for Levee Construction, Operation and Maintenance (executed November 2011), the District supported Kent construction of Boeing Levee improvements in 2012 and design of Hawley Levee improvements for 2013 construction.

## III. Operational and Programmatic Activities

### A. Flood Preparedness, Regional Flood Warning Center, and Post Flood Recovery Program

The District's operational work program includes preparing and educating citizens for flood events, coordinating emergency responses and regional flood warning center operations during flood events, and ensuring consistency across basins for post-flood recovery actions.

The King County Flood Alert System, providing automated flood phase information via text, phone or email, has more than 5,000 subscribers.



*A King County flood patrol staff person inspects the White River following the February 2012 flood event.*

Activities during the report period were focused on preparation for the 2012-2013 flood season. This included database and software updates to many of the systems used to manage and distribute flood warning information. The most noticeable new feature is a mobile device software application that was developed and implemented allowing the public to easily track flood conditions on major rivers in King County. The application is currently designed to be used on a smart phone or tablet using an internet browser.

Work is underway to provide the same functionality in native application formats that can be downloaded from the Apple iTunes, Google Play and Microsoft Windows stores for the 2013-2014 flood season.

Other activities included incorporating social media into flood response, creating completely new flood monitoring and patrol procedures and site maps. Throughout the flood season sandbags were made available free of charge to the public in partnership with local jurisdictions and community groups.



## 2012-2013 Flood Events

- **January 29-30, 2012** – The Snoqualmie River reached flood phase 2. This event resulted in minor flooding that typically occurs on several occasions throughout the season.
- **February 21-24, 2012** – This flood event produced the highest flows of the season and prompted flood patrols to inspect river facilities. The Snoqualmie and Tolt rivers rose above flood phase 3, as did the Green River due to controlled water releases from the U.S. Army Corps of Engineers' Howard Hanson Dam.
- **October 29 and November 19, 2012 and March 13, 2013** – The Snoqualmie River reached flood phase 2 on all of these dates. These events resulted in minor flooding.

The February event resulted in minor damage to the Holiday Kennel levee in Kent. Acquisitions are being pursued so that the damaged levee can be rebuilt in a stable alignment. Several Snoqualmie basin revetments and levees were also damaged by flooding in early 2012. The most significant of these – the Record Office Revetment on the Snoqualmie and the Si View Levee on the South Fork Snoqualmie – were repaired in the late summer and early fall of 2012. Other sites where damages were less extensive are being monitored to determine whether a future repair will be needed.

## B. Flood Hazard Studies, Mapping and Technical Services Program

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During the first quarter of 2011, FEMA's administrator announced that FEMA would delay issuance of final flood insurance maps pending development of a new risk-based analytical approach intended to incorporate levees that are unaccredited but may still provide some level of risk reduction. King County provided written comments to FEMA in the first quarter of 2012; it remains unclear how FEMA will revise its "without levee" analytical approach to establishing flood insurance maps, and the timeline is similarly uncertain.

### Program highlights include:

- **Preliminary Flood Insurance Rate Maps and Studies** – Maps and studies for the Upper White River Flood Study, Sammamish River Flood Study, Vashon-Maury Island Coastal Hazard Flood Study and the Incorporated King County Coastal Flood Hazard Study were received in February 2013. King County provided comments within the 30-day community comment period.
- **Sediment management**
  - Twenty-nine miles of Cedar and White river channels were surveyed to provide data for evaluating sediment accumulation rates. An existing conditions report (**Draft Lower White River 2011 Sediment Monitoring Summary** <sup>2</sup>), was completed and an evaluation (**Draft Evaluation of Gravel Removal in the Lower White River, 2011** <sup>3</sup>) of the effectiveness of gravel removal as a flood hazard reduction measure along the White River through Pacific and Auburn was completed. The latter report concludes that gravel removal would have minimal effects on overall flood levels at significant

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<sup>2</sup> <http://your.kingcounty.gov/dnrp/library/water-and-land/flooding/capital-projects/countyline-levee-setback/lower-white-river-channel-monitoring-2011.pdf>

<sup>3</sup> <http://your.kingcounty.gov/dnrp/library/water-and-land/flooding/capital-projects/countyline-levee-setback/lower-white-river-gravel-removal-2011.pdf>



cost. More aggressive gravel removal efforts necessary to have a greater effect on flood levels would likely undermine the bridges or the levees in this reach.

- Data was compiled for the Tolt, Middle Fork Snoqualmie, South Fork Snoqualmie, mainstem Snoqualmie (the Fall City reach) and Lower White rivers to support designing major flood risk reduction projects.
- Staff supported two U.S. Geological Survey (USGS) technical investigations that quantify present and predict future sediment movement in the White River and evaluated the effects on juvenile spring Chinook habitat in relation to flood management and flow scenarios for capital projects along the White River.<sup>4</sup>
- Installed four new flow gages, in partnership with USGS, equipped with radar capability in the White River to improve flood level monitoring.
- Completed an evaluation of state and county Channel Migration Zone (CMZ) mapping methods approaches for use in completing CMZ studies on King County rivers.
- Continued participation in the regional discussion about sediment management issues as part of the Washington Association of Floodplain Managers. Case studies and project proposals are shared with the goal of developing a common understanding of data needs, applicable analyses and potential management strategies.

## C. Public Outreach, Flood Hazard Planning and Grants, and Repetitive Loss Mitigation

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### Flood Preparedness and Public Outreach

The King County Rivers Facebook page ([www.facebook.com/kingcountyrivers](http://www.facebook.com/kingcountyrivers)) was launched in 2012 to better employ social media for sharing information on capital projects, river safety, and flooding.



In 2012, the annual flood preparedness campaign was kicked off by a media event featuring the King County Executive, King County Flood Control District Supervisors and the American Red Cross. The event coincided with the annual direct mail campaign to roughly 6,000 parcels in the King County Floodplain of the brochure, “2012-2013 Flood Update: Flood Warning Information for Major Rivers in King County.” The brochure, which was recognized with an award from the National Association of Government Communicators, was also prepared and distributed in Spanish. In addition, flood preparedness messages and activities were featured in the regional winter preparedness campaign, Take Winter By Storm, for which the District was a sponsor. As part of this campaign, the District, in partnership with Regional Animal Services of King County, held a special media event that stressed the importance of being prepared to evacuate with pets and livestock – a lesson learned from Hurricane Katrina – as part of being a flood resilient community.

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<sup>4</sup> Geomorphic Analysis of the River Response to Sedimentation Downstream of Mount Rainier, Washington; Czuba, et. al 2012 and Analysis of Juvenile Spring Chinook Habitat in the Lower White River, King County, WA, under Different Flood-Management and Flow Scenarios Based on Chinook Habitat Preferences and Foraging Energetics targeted for publication in 2013.)



In 2012, more than a dozen public meetings were hosted by staff throughout all basins to provide communities with information about capital projects, flood preparedness, flood hazard mapping and work on updating the King County Flood Hazard Management Plan.

### Leveraging External Resources through Grants and Partnerships

During the report period, the District had five active FEMA grant-funded projects underway; three active Washington State Department of Ecology grants for levee projects and funding for nine home elevations under FEMA's Severe Repetitive Loss.



*Take Winter By Storm mascot, T. Wheedle, Kara Main-Hester, with the Seattle Animal Shelter and Dr. Gene Mueller, Manager of Regional Animals Services of King County hold a news conference to urge residents to plan for their animals as part of flood preparedness.*

- **Hazard Mitigation Grant Program (multiple grants)** – The DR-1734 grant has been completed as the elevation portion of the Carnation Golf Course Club House wrapped up in January 2013. Two of the structures included in this grant were extremely difficult to elevate, for a variety of reasons, including property foreclosures. The successful implementation of this grant is a great accomplishment. Contracts are being signed for an additional nine home elevations under the Pre-Disaster Mitigation program.
- **Severe Repetitive Loss Grants (SRL)** – Four home elevations are under construction and two additional homes are nearing permitting. One home in the Kimball Creek area outside Snoqualmie has been acquired, the structures demolished and the site restored. This is the first time King County has received funding through the SRL program, which seeks to mitigate those properties that place the greatest financial burden on the National Flood Insurance Fund. Local funds are leveraged at 9 to 1 through this program; when additional flood insurance mitigation funds are accounted for, homeowners are paying approximately 1.5 percent of the cost of a home elevation through this grant or in some cases, no out-of-pocket expenses.

### King County Flood Hazard Management Plan Update

The King County Flood Hazard Management Plan (Plan) serves as the comprehensive plan for the District (RCW 86.15.110) and is a functional element of King County's Comprehensive Plan. Under FEMA's Community Rating System (CRS) the Plan must be updated regularly to maintain King County's Class 2 CRS rating, which provides an insurance discount of up to 40 percent for at-risk property owners in unincorporated King County. Staff have prepared flood risk reduction action plans for each basin, which identifies the actions and strategies proposed to address flood risks. Staff organized and facilitated six citizen

committee meetings and three public meetings to discuss issue papers and proposed basin action plans. A draft of the plan is being prepared for public review prior to transmittal to the King County Flood Control District Board of Supervisors and King County Council. The citizen committee agendas, issue papers, and meeting notes are available on the King County web site.<sup>5</sup>

## Levee Vegetation and U.S. Army Corps of Engineers PL 84-99 Eligibility

King County has been working with a team of state and federal partners, including the Seattle District of the U.S. Army Corps of Engineers (Corps), to achieve the following goals for levee vegetation management in Western Washington.

- 1. Safe and effective levees:** resilient that can be accessed and inspected during floods.
- 2. Functional habitat:** in densely developed locations our levees are our riverbanks.
- 3. Cost-effective:** use limited resources to address the worst problems first.
- 4. Science-based:** responsive to new information and research.

King County provided written comments to the Corps regarding its proposed changes to the policies that govern levee vegetation variances, and continued to work with the Puget Sound Partnership and others to determine how a System-Wide Improvement Framework (SWIF) might provide opportunities to collaboratively prioritize levee safety risks and ensure that limited public funds are targeted on the highest priority needs. A letter of intent was sent to the Corps in December 2012 to initiate the SWIF development process and King County's SWIF was approved by Corps headquarters in February 2013.

The SWIF approach allows an agency to consider all of their levee safety risks in a broad context of solving the worst problems first. Levee vegetation was an important prompt for this process but is only one facet of the overall goal, which is to improve levee safety.



*Materials used in the Record Office Revetment repair on the Upper Snoqualmie River.*

<sup>5</sup> <http://www.kingcounty.gov/environment/waterandland/flooding/documents/flood-hazard-management-plan-update.aspx>

## **National Flood Insurance Program (NFIP) Biological Opinion**

In July 2012, FEMA approved King County's Programmatic Habitat Assessment, which evaluated the impact of development within unincorporated King County's mapped floodplains. The assessment was prepared to demonstrate compliance with the 2008 Biological Opinion of the National Marine Fisheries Services (NMFS) regarding the effect of the NFIP on Puget Sound salmon and orca whales listed under the Endangered Species Act.

## **Community Rating System (CRS) Outreach Strategy**

King County and seven cities (Auburn, Bellevue, Issaquah, Kent, North Bend, Renton and Snoqualmie) participate in the CRS program under FEMA's NFIP. The CRS is a voluntary incentive program that rewards communities that go beyond the NFIP minimum standards for floodplain management in four types of activities: public information; mapping and regulations; flood damage reduction; and flood preparedness. Property owners within participating jurisdictions receive discounts on their flood insurance premiums based on their community's CRS rating. Currently, King County has a Class 2 rating that provides property owners in unincorporated King County with a flood insurance premium discount; Auburn, Bellevue, Issaquah and Snoqualmie are Class 5 communities that receive a 25 percent discount; and Kent, North Bend and Renton are Class 6 communities that receive a 20 percent discount. Because the District is a regional service provider, some of the activities it conducts provide CRS credits for participating communities.

## **D. King County Flood Control District Implementation**

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This work program element includes coordination with King County cities through the Basin Technical Committees (BTC) which are comprised of jurisdictions' technical staff and the 15-member Advisory Committee of elected officials.

Activities in 2012 included multiple meetings in each basin to discuss issue papers related to the flood plan update, develop recommendations for the 2013 budget and the 2013-2018 capital project list, as well as options for funding the WRIA salmon recovery funding grant program through the District. The Advisory Committee's Annual Report was transmitted to the Board of Supervisors by the King County Executive in August 2012 and is available online.<sup>6</sup>

During the first quarter of 2013, meetings of the BTCs and Advisory Committees were scheduled in preparation for the 2014 budget process, as well as updates on the work program for the Green River System-Wide Improvement Framework.

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<sup>6</sup>[www.kingcounty.gov/environment/waterandland/flooding/flood-control-zone-District/governance/advisory-committee.aspx](http://www.kingcounty.gov/environment/waterandland/flooding/flood-control-zone-District/governance/advisory-committee.aspx)

## **E. Resource Management, Annual Maintenance, and Facility Assessment Program**

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The District's vegetation management program includes control of excess vegetation on levees and in the Lake Sammamish Transition Zone, control of invasive and noxious weeds to meet Washington State noxious weed laws and prevent infestation of future project sites, as well as planting and stewardship of beneficial native plants on project sites and flood buyout properties.

Routine vegetation removal included cutting blackberry bushes along 22 miles of levees to meet standards established under the Corps' Rehabilitation and Inspection Program and to enhance levee access for inspections and flood patrols.

The program also continued its collaboration with the Cascade Land Conservancy (Cedar River) and Mountains to Sound Greenway (Raging River) to control Japanese knotweed on its flood protection facilities and flood buyout properties. Control work on the Snoqualmie, Green and White rivers was contracted directly by the District.

During the reporting period, the rock weir in the Lake Sammamish Transition Zone channel was removed, the willow buffer was trimmed, and the high flow channel was mowed to increase channel flow capacity. This work was completed as part of the commitment made in the Lake Sammamish Flood Reduction Plan (April 2011) to address residential concerns around high water levels in Lake Sammamish.

Approximately 2,200 native plants were planted and maintained by the District at 13 capital project or mitigation sites. More than 1,200 plants were planted at five additional flood buyout properties by the Water and Land Resource Division's Small Habitat Restoration Program and Puget Sound Energy. Several dozen additional sites were inspected for maintenance needs including the identification and control of state listed noxious weeds and mowing to reduce the summer fire hazard and meet community expectations concerning aesthetics.

Monitoring inspections were conducted in the fall of 2012 at 34 project sites with active permits. Twenty-two monitoring reports were completed in 2012 with eleven remaining to be completed in early 2013.

Lastly, staff coordinated closely with the City of Kent to clear a large homeless camp near Mullen Slough on the Green River removing tenants of approximately 30 tents out of harm's way. Relocation was coordinated with the King County Sheriff's Office and City of Kent Police, and with local human services agencies to provide alternative housing for camp residents.

## **F. Program Management and Supervision; and Finance, Budget and General Administration**

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### **Contract Management**

In 2012, 42 new engineering work orders were initiated and \$1,461,118 was committed. One small works roster construction contract was initiated worth \$55,000. Sixteen contracts, listing a total of 48 consultants and contractors were maintained in the River and Floodplain Management Section and a total of \$2,504,698 was paid in 2012 under all contracts. There are 48 consultants and contractors in the 16 contracts.

Pending, for the first quarter of 2013, are two Construction Management and Inspection work order contracts for \$2 million each, two construction contracts estimated at \$9 million, and one project-specific professional contract estimated at \$300,000. This does not include use of contracts administered by other King County divisions or departments.

### **Conclusion**

While the formative years of the District targeted high-priority, high-risk repairs caused by floods in 2006, 2009, and 2011, the work done for this report period focuses on major levee rehabilitations necessary to get ahead of the next flood. In addition, the update to the 2006 Flood Plan involved discussion of increasingly complex policy issues—such as social justice, the scope of the District’s capital program, sediment management, and levee accreditation—that have significant implications for flood risk reduction goals and priorities for the coming years.



# Appendix A

*2012 Final Budget*





## 2012 Budget

### Flood Control District Administration

Flood District Administration

\$687,864

### Operating Budget

| Description                                      | Budget             |
|--|--------------------|
| Annual Maintenance                               | \$1,595,481        |
| Flood Hazards Plan, Grants, Outreach             | \$485,268          |
| Flood Hazard Studies, Maps, Technical Services   | \$1,695,428        |
| Flood Preparation, Flood Warning Center          | \$463,757          |
| Program Management, Supervision, Finance, Budget | \$588,581          |
| Program Implementation                           | \$2,510,856        |
| Overhead / Central Costs                         | \$1,688,548        |
| <b>Total</b>                                     | <b>\$9,027,919</b> |

### Capital Budget

| Project                       | Description  | Budget              |
|-------------------------------|--|---------------------|
| <b>Snoqualmie River Basin</b> |  |                     |
| FL0001                        | Miller River Home Buyout                           | \$285,707           |
| FL0002                        | Miller River Road Protection                       | \$108,566           |
| FL0004                        | Timber Lane Village Home Erosion Buyouts           | \$653,169           |
| FL0005                        | S.F. Skykomish River Repetitive Loss Mitigation    | \$174,554           |
| FL0007                        | Mcknight Repair                                    | \$2,903             |
| FL0010                        | Maloney Cr Conf Improvements                       | \$49,380            |
| FL1002                        | N Bend Resid Flood Mitgtn                          | \$847,829           |
| FL1003                        | South Fork Levee System Improvements               | \$2,140,807         |
| FL1019                        | Middle Fork Levee System Capacity Improvements     | \$2,440,910         |
| FL1023                        | Upper Snoqualmie Residential Flood Mitigation      | \$3,073,090         |
| FL1041                        | Mason Thorson Ext 2011 Repair                      | \$42,305            |
| FL1042                        | Shakemill Levee 2011 Repair                        | (\$15,813)          |
| FL1043                        | Record Office Revetment 2011 Repair                | (\$376)             |
| FL1044                        | Meadowbrook Revetement 2011 Repair                 | \$91                |
| FL2001                        | Aldair/Fall City Buyout                            | \$1,696,147         |
| FL2002                        | Lower Snoqualmie River Flood Damage Repairs        | \$3,047             |
| FL2012                        | Mcelhoe/Person Levee                               | \$215,836           |
| FL2013                        | Snoqualmie 13.5 Revetment                          | \$663,673           |
| FL2014                        | Lower Snoqualmie River Repetitive Loss Mitigation  | \$424,442           |
| FL2018                        | Farm/Flood Task Force Implementation               | \$101,644           |
| FL2020                        | Lower Snoqualmie Residential Flood Mitigation      | \$648,105           |
| FL2021                        | Sinerra Qualle 2011 Repair                         | \$900,054           |
| FL3002                        | Tolt River Corridor Study                          | \$342,594           |
| FL3004                        | Lower Tolt River Acquisition                       | \$75,000            |
| FL3005                        | San Souci Neighborhood Buyout                      | \$1,680,933         |
| FL3006                        | Tolt River Natural Area Floodplain Reconnection/Ac | \$800,000           |
| FL3009                        | Tolt River Mile 1.1 Levee Setback                  | \$1,818,195         |
| FL4001                        | Alpine Manor Mobile Home Park Neighborhood Buyout  | \$2,542,471         |
| FL4021                        | Preston-Fall City Upper                            | \$85,399            |
| <b>TOTAL SNOQUALMIE BASIN</b> |  | <b>\$21,800,662</b> |

### Cedar River Basin

|        |  |           |
|--------|--|-----------|
| FL5001 | Willowmoor Floodplain Restoration      | \$150,000 |
| FL6003 | Bellevue - Lower Coal Creek Phase 1    | \$100,000 |
| FL7004 | Cedar River Repetitive Loss Mitigation | \$203,079 |

**Cedar River Basin** *(continued)*

|                                |  |                     |
|--------------------------------|--|---------------------|
| FL7005                         | Elliott Bridge Levee Setback And Acquisition       | \$359,094           |
| FL7006                         | Rainbow Bend Levee Setback and Floodplain Reconnec | \$2,535,829         |
| FL7014                         | Dorre Don Meanders Ph 1                            | \$242,209           |
| FL7015                         | Herzman Levee Setback                              | \$258,716           |
| FL7016                         | Jan Road-Rutledge Johnson Levee Setbacks           | \$250,032           |
| FL7017                         | Maplewood Levee Setback Ph 1                       | \$103,000           |
| FL7018                         | Cedar River Gravel Removal                         | \$2,025,331         |
| FL7027                         | Cedar Rapids Repair                                | \$8,298             |
| FL7037                         | Rhode Levee Setback                                | \$213,966           |
| FL7040                         | Cedar Pre-Construction Strategic Acquisition       | \$2,213,689         |
| FL7043                         | Cedar River Trail 2b Fema                          | \$289               |
| FL7044                         | Belmondo Fema 1653 Ph I                            | \$605,503           |
| FL7048                         | Cedar Rapids 2011 Repair                           | \$763,072           |
| FL7049                         | Youngs Revetment 2011 Repair                       | \$33,527            |
| <b>TOTAL CEDAR RIVER BASIN</b> |  | <b>\$10,065,634</b> |

**Green River Basin**

|                                |   |                     |
|--------------------------------|---|---------------------|
| FL8003                         | Green R Flood Repairs                         | \$14,159            |
| FL8017                         | Briscoe Reach Design (180th To 200th)         | \$629,373           |
| FL8021                         | Reddington Reach                              | \$6,238,000         |
| FL8037                         | Upper Russell/Soames-Dolan                    | \$2,719,168         |
| FL8038                         | Green River PL84-99 Mitigation                | \$1,530,514         |
| FL8041                         | Horseshoe Bend Acquisition And Reconstruction | \$1,360,270         |
| FL8045                         | Green River Flood Emergency Prep              | \$1,689,395         |
| FL8058                         | Green Pre-Construction Acquisition            | \$465,212           |
| FL8059                         | Tukwila 205 - Lily Point                      | \$8                 |
| FL8060                         | Briscoe Levee Setback                         | \$7,000,000         |
| FL8072                         | Hawley Rd Levee FCAAP                         | \$860,831           |
| FL8073                         | Boeing Levee Addition FCAAP                   | \$2,068,340         |
|                                | Green River Sandbag Removal                   | \$5,889,882         |
| <b>TOTAL GREEN RIVER BASIN</b> |   | <b>\$30,465,152</b> |

**White River Basin**

|                                |   |                    |
|--------------------------------|---|--------------------|
| FL9001                         | County Line To A-Street Flood Conveyance        | \$4,161,066        |
| FL9007                         | Pacific Right Bank Acquisition And Setback Berm | \$585,871          |
| <b>TOTAL WHITE RIVER BASIN</b> |   | <b>\$4,746,937</b> |

**Seattle Projects**

|                               |   |                    |
|-------------------------------|---|--------------------|
| FLC001                        | Alaskan Way Seawall Construction                  | \$2,000,000        |
| FLC002                        | South Park - Duwamish Backwater Inundation at 4th | \$1,450,000        |
| <b>TOTAL SEATTLE PROJECTS</b> |   | <b>\$3,450,000</b> |

|        |                                      |              |
|--------|--------------------------------------|--------------|
| FLM000 | Flood CIP Monitoring and Maintenance | \$659,478    |
| FLS000 | Subregional Opportunity Fund         | \$11,029,327 |

**Countywide Costs**

|                               |                             |                    |
|-------------------------------|-----------------------------|--------------------|
| FLX200                        | Flood Emergency Contingency | \$250,000          |
| FLX400                        | Central Costs               | \$221,500          |
|                               | WRIA Grant Funding          | \$3,000,000        |
| <b>TOTAL COUNTYWIDE COSTS</b> |                             | <b>\$3,471,500</b> |

|                             |  |                     |
|-----------------------------|--|---------------------|
| <b>TOTAL CAPITAL BUDGET</b> |  | <b>\$85,688,690</b> |
|-----------------------------|--|---------------------|

|                                     |  |                     |
|-------------------------------------|--|---------------------|
| <b>Flood Control District Total</b> |  | <b>\$95,404,473</b> |
|-------------------------------------|--|---------------------|



## Appendix B

### *2012 Expenditures*



## 2012 Expenditures

### Flood Control District Administration

|  |                  |
|--|------------------|
| Flood District Administration              | \$635,830        |
| Flood Levy Tax Refunds                     | \$95,374         |
| <b>Total Flood District Administration</b> | <b>\$731,205</b> |

### Operating Expenditures

| Description                                      | Expenditures       |
|--|--------------------|
| Annual Maintenance                               | \$1,248,818        |
| Flood Hazards Plan, Grants, Outreach             | \$1,246,893        |
| Flood Hazard Studies, Maps, Technical Services   | \$544,274          |
| Flood Preparation, Flood Warning Center          | \$375,335          |
| Program Management, Supervision, Finance, Budget | \$907,123          |
| Program Implementation                           | \$2,050,261        |
| Overhead / Central Costs                         | \$710,263          |
| <b>Total Operating</b>                           | <b>\$7,082,968</b> |

### Capital Expenditures

| Project                       | Description                                       | Expenditures       |
|-------------------------------|---|--------------------|
| <b>Snoqualmie River Basin</b> |   |                    |
| 1112057                       | Maloney Creek Confluence Improvements             | \$380              |
| 1112059                       | Miller River Road Protection                      | \$33,905           |
| 1044459                       | Miller River Home Buyout                          | \$2,071            |
| 1044461                       | S.F. Skykomish River Repetitive Loss Mitigation   | \$839              |
| 1112052                       | Skykomish Home Buyouts                            | \$380              |
| 1044460                       | Timber Lane Village Home Buyouts                  | \$88,653           |
| 1115460                       | Allen Revetment Repair                            | \$385              |
| 1044468                       | City of Snoqualmie Natural Area Acquisitions      | \$172              |
| 1112055                       | Meadowbrook 2011 Repair                           | \$12,063           |
| 1044469                       | Middle Fork Levee System Capacity Improvements    | \$550,617          |
| 1112047                       | Mason Thorson Ext 2011 Repair                     | \$1,451            |
| 1044465                       | North Bend Area Residential Flood Mitigation      | \$142,486          |
| 1112032                       | Record Office 2011 Repair                         | \$123,231          |
| 1044466                       | South Fork Levee System Improvements              | \$428,017          |
| 1044517                       | Upper Snoqualmie Residential Flood Mitigation     | \$1,553,871        |
| 1044576                       | Aldair & Fall City Reach Flood Mitigation         | \$457,627          |
| 1044581                       | Farm/Flood Task Force Implementation              | \$88,719           |
| 1044580                       | Lower Snoqualmie River Repetitive Loss Mitigation | \$171,727          |
| 1044582                       | Lower Snoqualmie Resl Flood Mitigation            | \$291,717          |
| 1112020                       | McElhoe/Person Levee                              | \$12,924           |
| 1112046                       | Sinnema Quaalie 2011 Repair                       | \$152,667          |
| 1044579                       | Winkelman Revetment Repair                        | \$13,127           |
| 1112034                       | Lower Tolt River Acquisition                      | \$16,774           |
| 1044645                       | San Souci Neighborhood Buyout                     | \$958,142          |
| 1112058                       | Tolt River Mile 1.1 Levee Setback                 | \$163,204          |
| 1115032                       | Tolt River Natural Area Floodplain Acquisition    | \$774,095          |
| 1044644                       | Tolt Corridor Analysis                            | \$295,477          |
| 1044647                       | Alpine Manor Mobile Home Park Neighborhood Buyout | \$13,477           |
| 1044649                       | Preston-Fall City Upper Repair                    | \$970              |
| <b>TOTAL SNOQUALMIE BASIN</b> |   | <b>\$6,349,166</b> |

**Cedar River Basin**

|   |           |
|---|-----------|
| 1112037 Willowmoor Floodplain Restoration                     | \$35,271  |
| 1112024 Belmondo Rvtmnt Repair FEMA PW1653                    | \$470,091 |
| 1044734 Cedar Pre-Construction Strategic Acquisition          | \$742,342 |
| 1044651 Cedar River Repetitive Loss Mitigation                | \$1,164   |
| 1115122 Cedar River Trail 2B FEMA                             | \$950     |
| 1112045 Cedar Rapids 2011 Repair                              | \$283,831 |
| 1115124 Cedar Rapids Repair                                   | \$6,110   |
| 1044729 Cedar River Gravel Removal                            | \$13,760  |
| 1112041 Elliott Bridge Levee Setback and Acquisition          | \$3,403   |
| 1112029 Rainbow Bend Levee Setback and Floodplain Reconnector | \$267,546 |
| 1112043 Youngs Revetment Repair                               | \$380     |

|                                |                    |
|--------------------------------|--------------------|
| <b>TOTAL CEDAR RIVER BASIN</b> | <b>\$1,824,850</b> |
|--------------------------------|--------------------|

**Green River Basin**

|   |             |
|---|-------------|
| 1112025 Boeing Levee Addition - Kent              | \$14,971    |
| 1116515 Briscoe Levee Setback                     | \$5,090,459 |
| 1112051 Briscoe Reach Design                      | \$73,780    |
| 1044961 Green Pre-Construction Acquisition        | \$350,870   |
| 1044884 Green Flood Emergency Preparation         | \$457,610   |
| 1044882 PL84-99 Mitigation Site                   | (\$30,339)  |
| 1112040 Hawley Rd Levee - Kent                    | \$16,416    |
| 1112033 Horseshoe Bend Acquisition & Reconnection | \$17,452    |
| 1112035 Reddington Reach Design                   | \$3,792,828 |
| 1044881 Russell Rd Upper                          | \$3,259     |
| 1117948 Green River Sandbag Removal               | \$158,444   |

|                                |                    |
|--------------------------------|--------------------|
| <b>TOTAL GREEN RIVER BASIN</b> | <b>\$9,945,749</b> |
|--------------------------------|--------------------|

**White River Basin**

|  |             |
|--|-------------|
| 1112049 County line to A-Street Flood Conveyance Improvement | \$1,222,461 |
| 1112038 Pacific Right Bank Acquisition and Setback Berm      | \$499,657   |

|                                |                    |
|--------------------------------|--------------------|
| <b>TOTAL WHITE RIVER BASIN</b> | <b>\$1,722,118</b> |
|--------------------------------|--------------------|

**Seattle Projects**

|   |             |
|---|-------------|
| 1045041 Alaskan Way Seawall Design & Construction | \$2,007,271 |
| 1112036 South Park Duwamish Pump Station          | \$999,760   |

|                               |                    |
|-------------------------------|--------------------|
| <b>TOTAL SEATTLE PROJECTS</b> | <b>\$3,007,031</b> |
|-------------------------------|--------------------|

|  |           |
|--|-----------|
| 1044282 Flood CIP Monitoring/Maintenance | \$182,029 |
|--|-----------|

|                                      |             |
|--------------------------------------|-------------|
| 1045042 Subregional Opportunity Fund | \$3,780,954 |
|--------------------------------------|-------------|

**Countywide Costs**

|                                     |           |
|-------------------------------------|-----------|
| 1044281 Central Charges             | \$211,564 |
| 1044279 Flood Emergency Contingency | \$73,712  |
| 1117333 Watershed Management Grants | \$96,721  |
| 0000000 Default                     | \$63,518  |

|                               |                  |
|-------------------------------|------------------|
| <b>TOTAL COUNTYWIDE COSTS</b> | <b>\$445,515</b> |
|-------------------------------|------------------|

|                      |                     |
|----------------------|---------------------|
| <b>Total Capital</b> | <b>\$27,257,411</b> |
|----------------------|---------------------|

|  |                     |
|--|---------------------|
| <b>FLOOD DISTRICT TOTAL <sup>1</sup></b> | <b>\$35,071,584</b> |
|--|---------------------|

<sup>1</sup> The Flood District total expenditure includes expenditures in the capital and operating funds backed by King County revenue such as grants and the InterCounty River Improvement Fund (ICRIF). For this reason the total is higher than the expenditures shown in the King County Comprehensive Annual Financial Report (CAFR) for the Flood District fund 190010010.





# Appendix C

## *2013 Budget*



## 2013 Budget

### Flood Control District Administration

Flood District Administration \$592,190

### Operating Budget

| Description                                      |                    |
|--|--------------------|
| Annual Maintenance                               | \$2,644,074        |
| Flood Hazards Plan, Grants, Outreach             | \$435,056          |
| Flood Hazard Studies, Maps, Technical Services   | \$567,984          |
| Flood Preparation, Flood Warning Center          | \$638,363          |
| Program Management, Supervision, Finance, Budget | \$783,491          |
| Program Implementation                           | \$3,415,289        |
| Overhead / Central Costs                         | \$1,429,349        |
| <b>Total</b>                                     | <b>\$9,913,606</b> |

### Capital Budget<sup>1</sup>

| Project                       | Description                                       |                    |
|-------------------------------|---|--------------------|
| <b>Snoqualmie River Basin</b> |   |                    |
| 1112057                       | Maloney Creek Confluence Improvements             | \$27,244           |
| 1112059                       | Miller River Road Protection                      | (\$22,086)         |
| 1044461                       | S.F. Skykomish River Repetitive Loss Mitigation   | (\$174,554)        |
| 1044460                       | Timber Lane Village Home Buyouts                  | (\$503,169)        |
| 1044468                       | City of Snoqualmie Natural Area Acquisitions      | \$5,000            |
| 1112055                       | Meadowbrook 2011 Repair                           | \$7,909            |
| 1044469                       | Middle Fork Levee System Capacity Improvements    | \$502,071          |
| 1112047                       | Mason Thorson Ext 2011 Repair                     | (\$18,492)         |
| 1044465                       | North Bend Area Residential Flood Mitigation      | (\$509,496)        |
| 1044466                       | South Fork Levee System Improvements              | \$1,238,999        |
| 1044517                       | Upper Snoqualmie Residential Flood Mitigation     | \$296,261          |
| 1044576                       | Aldair & Fall City Reach Flood Mitigation         | \$368,297          |
| 1044581                       | Farm/Flood Task Force Implementation              | \$101,356          |
| 1044580                       | Lower Snoqualmie River Repetitive Loss Mitigation | (\$224,442)        |
| 1044582                       | Lower Snoqualmie Resl Flood Mitigation            | \$60,895           |
| 1112020                       | McElhoe/Person Levee                              | (\$140,836)        |
| 1112046                       | Sinerra Qualle 2011 Repair                        | \$265,986          |
| 1044579                       | Tolt Pipeline Protection                          | \$29,627           |
| 1112034                       | Lower Tolt River Acquisition                      | \$874,182          |
| 1044645                       | San Souci Neighborhood Buyout                     | \$283,250          |
| 1112058                       | Tolt River Mile 1.1 Levee Setback                 | (\$358,740)        |
| 1115032                       | Tolt River Natural Area Floodplain Acquisition    | \$817,060          |
| 1044644                       | Tolt Corridor Analysis                            | \$156,126          |
| 1044647                       | Alpine Manor Mobile Home Park Neighborhood Buyout | (\$1,541,320)      |
| 1044649                       | Preston-Fall City Upper Repair                    | (\$75,399)         |
| <b>TOTAL SNOQUALMIE BASIN</b> |   | <b>\$1,465,729</b> |
| <b>Cedar River Basin</b>      |   |                    |
| 1112037                       | Willowmoor Floodplain Restoration                 | \$300,000          |
| 1116846                       | Lower Coal Creek Phase I                          | \$100,000          |
| 1112024                       | Belmondo Rvtmnt Repair FEMA PW1653                | \$133,497          |
| 1044734                       | Cedar Pre-Construction Strategic Acquisition      | \$637,800          |
| 1116060                       | Cedar Levee Setback Feasibility                   | \$376,980          |
| 1044651                       | Cedar River Repetitive Loss Mitigation            | \$159,652          |
| 1112045                       | Cedar Rapids 2011 Repair                          | (\$11,952)         |

<sup>1</sup> The numbers shown here represent the budget as adopted in Resolution FCD2011-06.3 It is the new appropriation for 2013 and does not include carryover budget from 2012. It is anticipated the Board of Supervisors will adopt the carryover additions to the budget in the second quarter of 2013.

|   |                    |
|---|--------------------|
| 1044729 Cedar River Gravel Removal                            | \$319,049          |
| 1044728 Dorre Don Meanders Phase I                            | \$10,256           |
| 1112041 Elliott Bridge Levee Setback and Acquisition          | \$380,806          |
| 1112042 Herzman Levee Setback                                 | (\$238,716)        |
| 1112039 Jan Rd-Rutledge Levee Setback                         | (\$204,432)        |
| 1112031 Maplewook Acquisition and Levee Setback               | (\$78,000)         |
| 1112029 Rainbow Bend Levee Setback and Floodplain Reconnector | (\$1,163,579)      |
| 1112021 Rhode Levee Setback                                   | (\$173,366)        |
| 1119888 Riverbend Mobile Home Park Acquisition                | \$3,000,000        |
| <b>TOTAL CEDAR RIVER BASIN</b>                                | <b>\$2,826,634</b> |

#### **Green River Basin**

|   |                     |
|---|---------------------|
| 1116360 Black River Pump Station                  | \$1,907,766         |
| 1112025 Boeing Levee Addition - Kent              | \$32,665            |
| 1116515 Briscoe Levee Setback                     | \$3,650,000         |
| 1112051 Briscoe Reach Design                      | (\$223,053)         |
| 1044884 Green Flood Emergency Preparation         | (\$109,395)         |
| 1044882 PL84-99 Mitigation Site                   | (\$487,173)         |
| 1112040 Hawley Rd Levee - Kent                    | \$52,624            |
| 1112033 Horseshoe Bend Acquisition & Reconnection | \$2,178,730         |
| 1120033 Lower Russell Repair                      | \$500,000           |
| 1112035 Reddington Reach Design                   | \$10,455,484        |
| 1044881 Russell Rd Upper                          | (\$384,425)         |
| 1117948 Green River Sandbag Removal               | (\$262,458)         |
| 1116363 USACE System-Wide Improvement Framework   | \$67,980            |
| <b>TOTAL GREEN RIVER BASIN</b>                    | <b>\$17,378,745</b> |

#### **White River Basin**

|  |                    |
|--|--------------------|
| 1112049 County line to A-Street Flood Conveyance Improvement | (\$346,216)        |
| 1112038 Pacific Right Bank Acquisition and Setback Berm      | \$1,706,036        |
| <b>TOTAL WHITE RIVER BASIN</b>                               | <b>\$1,359,820</b> |

#### **Seattle Projects**

|   |                    |
|---|--------------------|
| 1045041 Alaskan Way Seawall Design & Construction | \$5,030,000        |
| 1112036 South Park Duwamish Pump Station          | \$1,800,000        |
| <b>TOTAL SEATTLE PROJECTS</b>                     | <b>\$6,830,000</b> |

|  |           |
|--|-----------|
| 1112022 Project Effectiveness Monitoring | \$365,951 |
|--|-----------|

|                                      |             |
|--------------------------------------|-------------|
| 1045042 Subregional Opportunity Fund | \$3,719,603 |
|--------------------------------------|-------------|

#### **Countywide Costs**

|                                     |                    |
|-------------------------------------|--------------------|
| 1044281 Central Charges             | \$180,172          |
| 1044279 Flood Emergency Contingency | \$250,000          |
| 1117333 Watershed Management Grants | \$3,150,000        |
| <b>TOTAL COUNTYWIDE COSTS</b>       | <b>\$3,580,172</b> |

|                             |                     |
|-----------------------------|---------------------|
| <b>TOTAL CAPITAL BUDGET</b> | <b>\$38,248,015</b> |
|-----------------------------|---------------------|

|                                     |                     |
|-------------------------------------|---------------------|
| <b>Flood Control District Total</b> | <b>\$48,753,811</b> |
|-------------------------------------|---------------------|







